

Natural Resources Conservation Texas Forestry Technical Note, TX-FS-12-1



Turkey feeding in an woodland opening containing native plants



Measuring browse impacts on native teaweed

Native Vegetation Management for Wildlife

Managing native vegetation is a beneficial method of improving wildlife habitat and food sources. Plants are used by wildlife throughout the year. Various management practices can be utilized to improve the quantity and quality of these food sources.

Native vegetation is often overlooked as a part of the resource that needs managing to develop its' full potential. More attention is given to food plots and feeding areas and these are beneficial especially for attracting wildlife to specific areas. However, very few landowners provide enough coverage in food plots to greatly enhance the quantity of food available on a year round basis. (The two photos above are native plants being maintained much like a food plot with periodic disking and fertilization. Note the difference between the plants inside the enclosure and outside of the enclosure – that is how much vegetation has been consumed by deer).

Wildlife have three basic requirements for survival which includes food, shelter (cover) and water. A fourth requirement is space (Yarrow and Yarrow 2005). These habitat conditions need to be in sufficient amounts so that the species can live, reproduce and sustain its population. Each wildlife species has its own requirements and habitat needs. Some wildlife species are very adaptable and use a wide range of habitat and food sources such as whitetail deer and coyotes. Other species have very specific habitat and food needs and if that habitat is not available, the species does not do very well. Wildlife species on the threatened and endangered species list generally fall into the group with specific habitat and food requirements.

First let's examine a few terms relating to wildlife habitat. **Edge** is a common term and refers to the area between two or more types of habitat. For example, the edge is where a field becomes a forest or wooded, where a mowed area touches an area not mowed, or where hardwood trees meet evergreen

trees. A grown up fence row provides some edge habitat across a pasture or field. There are many types of plants and shrubs that grow along the edge and they are great places to find plants that provide food sources for wildlife.

Structure is the physical make-up of the vegetation, topography along with other characteristics like down woody material, snags and vertical structure. **Cover** is a group of plants/shrubs or trees that is large enough and in sufficient quantity to hide an animal. The size of the animal determines what type of cover they will seek out for their use. Cover also provides protection from extremes in temperature, wind, rain and/or snow. Cover provides a place where an animal can rest and be protected from predators.

Wildlife can survive a few days without water. **Water** is critical to all organisms for their survival (Yarrow and Yarrow 2005). Managing water and water sources impacts the distribution, quality and quantity of water. Some animals and birds obtain water from the foods they eat while others need a direct source of water. When considering wildlife management strategies consideration should be given to providing edge, cover, structure and sources of water. A key is to improve diversity in all of these elements across the property.

Let's examine a few wildlife species, their habitat needs and how the land can be manipulated to improve the habitat and food sources available.

Turkeys:

Turkeys require an extensive area of forest or wild land. Turkeys require habitat that contains mature trees with relatively open understories, small clearings, water, and undisturbed areas. They will also use intensively managed stands of trees, however, some attributes of undisturbed forest should be retained. Disturbances such as vehicles, free-running dogs, and humans can adversely affect wild turkey populations and should be minimized to lessen the negative impact on turkeys.

Turkeys eat almost anything they can swallow (Yarrow and Yarrow 2005). When turkeys reach about a month old, plant material makes up the majority of their diet with the remaining portion comprised of insects, small lizards, frogs, tadpoles and salamanders. Turkeys need a place to obtain water. So how do we supply the necessary foods and cover to improve turkey habitat?

Habitat Manipulation:

Forests can be managed by controlling the density of the trees, periodic burning, thinning out some trees and shrubs, using herbicides to control undesirable shrubs or trees, disking to expose soil and initiate new plant growth, mowing to reduce vegetation cover, planting trees that produce fruit (wild plum, crab apples, persimmon, etc.) or trees that produce hard mast (oaks, pecan, etc.). Woodland areas can be managed in the same way. Woodland areas are areas with trees but they are not generally considered to be growing trees to make wood products.

If you have trees on your property, it is important to maintain some travel corridors with mature trees creating a relatively open understory. It is also a great benefit to keep and protect trees growing along stream banks. A streambank with tree cover provides some travel lanes and periodic food sources, not to mention the soil and water quality benefits. Retain both hard and soft mast bearing trees such as the oak, mulberries and persimmons as they provide food sources at different times of the year.

Provide small openings throughout the forest, range or other wild land and maintain these openings by disking or mowing every two or three years. These areas provide food from the plants and the insects that feed on the plants. In agricultural areas, eliminate the fall tillage of crops. The areas left for wildlife

cover such as field edges or small openings in the forest or wild land should not be disturbed during the nesting season (March 1 to July 1). The best time to disk or mow these areas is in early fall to promote desirable forbs instead of grasses.

Another tool available in managing turkey habitat is prescribed fire. Burning exposed hidden seeds for wildlife and initiates new plant growth. Turkeys love areas recently burned as the burning exposes seeds and insects that were hidden in the litter layer.



Prescribed fire in a pine forest



Post fire, note all of the new plant growth

Bobwhite Quail

Bobwhite quail require an interspersed or mixture of forest habitat including shrubs, grass, open areas and escape cover. An open understory is a critical component of quail habitat. When ground litter and grasses become too thick, quail abandon the area in search of favorable habitat.

Quail are primarily seed eaters but their diet will include a range of plant and animal matter (insects), hard and soft mast, fleshy fruits and snails. Some common foods of quail include lespedeza, beggarweed, Partridge pea, ragweed, dogwood seeds, pine seeds, and most seeds produced by forbs and grasses. Quail also eat insects such as grasshoppers, crickets, spiders, etc. Quail get enough water from dew on plants.

Habitat Manipulation

So how do we supply the necessary foods and cover to improve quail habitat? Forests and wild lands can be managed by periodic burning, tree/shrub thinning, herbicide application to control undesirable trees/shrubs, disking to expose soil and initiate new plant growth, mowing to reduce vegetation cover and planting trees that produce fruit (wild plum, crabapples, persimmons, etc.) and provide cover. Disking and prescribed burning are key components to managing for quail.

Whitetail Deer

Numerous books have been written regarding whitetail deer. Deer occupy a wide range of habitats including forest and non-forest habitats. Deer feed upon a variety of plants, mast, fruit, herbs, grasses, twigs, leaves of woody plants and fungi throughout the year. In fall and winter, high priority deer foods are evergreen browse, hard and soft mast, herbaceous vegetation and fungi. It is advantageous to learn the plants that deer will consume and the plants deer prefer to consume. A key to manipulating deer habitat is to enhance the preferred foods in both quantity and quality. Adult deer require 6 to 8 lbs. of green food per 100 lbs. of body mass. Deer nutritionists generally agree that a diet containing 16 – 20% protein is more than adequate to support deer protein requirements to reach their genetic potential (Yarrow and Yarrow, 2005).

How can you improve deer habitat?

Retain some hard and soft mast trees on your property especially in clumps and along waterways. Hard mast trees include the oaks, pecans, beech, etc., while soft mast trees include mulberry, persimmon, wild plums, etc. The hard and soft mast producing trees provide food sources at different times throughout the year which is why plant or tree diversity is important. Another practice to improve wildlife habitat is to thin forests or woodlands to promote a herbaceous understory. This can be accomplished across the entire property or in patches. Also, it is desirable to create some small openings in the forest to provide edge cover and some herbaceous vegetation. Herbaceous vegetation is comprised of grasses and forbs. Forbs are broadleaf plants such as ragweed, wooly croton, and goldenrod. About 70 percent of a deer's diet is comprised of forbs. Deer also browse on a wide variety of shrubs, leaves and vines. All of these plants can be enhanced to increase the quantity and quality of the food available on the land.

Blackberry (*Rubus argutus* Link) and dewberry (*Rubus trivialis* Michx.) plants have sharp small thorns along the stem. Both of these plants produce edible fruit that is used not only by deer but other animals and birds as well. Dewberry grows lower to the ground and in more open areas compared to blackberry and dewberry fruit usually ripens earlier too. Deer like to browse the new plant growth in the spring when the leaves and stems are tender. Dewberry plants flower between March and April with fruit maturing in April and May which is slightly earlier than blackberry. Southern dewberry are commonly found in more open areas compared to blackberry plants such as new clearcuts, along roadways, railroad tracks and abandoned fields. These plants can tolerate poor soils and are quick to reclaim disturbed sites. Collectively, the various species of *Rubus* arguably are the most important group of plants to wildlife in the Southeast (Miller and Miller 1999). These plants can be maintained by mowing or burning creating new growth. Fertilizing these plants is also very beneficial.

Greenbriar (*Smilax* sp.) is a vine that is favored by deer. Wildlife use all of the greenbrier species as a food source throughout the year. White-tailed deer browse the stems and leaves of greenbrier while birds consume the fruit which is a berry. Deer eat the tender shoots and leaves as they emerge and in late winter when other food sources have disappeared, deer will eat older, more mature leaves and stems (Hart 2006). Greenbrier does respond well to fertilization.

Another vine eaten by deer is muscadine grape (*Vitis rotundifolia* Michx.). White-tail deer readily consume the leaves and twigs and the ripe fruit that are within their reach or after the fruit falls from the vine. Whitetail-deer will eat wild grapes no matter where they grow or what variety (Hart 2006). Turkey and quail also consume the muscadine fruit that have fallen to the ground.

A small shrub that provides a lot of forage for deer is American beautyberry (*Callicarpa americana* L.). This plant is readily recognized in the fall with the small clusters of purple berries. White-tail deer consume the leaves and twigs of beautyberry year round and the berries in late fall and winter. Quail and turkey will feed on the berries and in fact more than 40 species of birds consume the fruit of beautyberry. The consumption of the fruit by birds is a major method of seed dispersal (Miller and Miller 1999). This plant can be maintained by mowing and burning and responds to fertilization.

Deer get by on protein levels of 8 to 10 percent but to achieve good body weights and antler development the protein levels need to reach about 17 percent (Yarrow and Yarrow 2005). All of the plants mentioned here can be brought up to the 17 percent range with plant growth enhancement products and/or fertilization. The plants listed here were treated with 100 lbs/ac of triple thirteen. I have also used other plant enhancement products that improve plant growth, protein content and digestibility.



American beauty berry (*Callicarpa americana* L.) with crude protein levels from 13 to 16 percent after fertilization



Muscadine grape
(*Vitis rotundifolia* Michx.)



Greenbriar with crude protein ranging from 17 to 25 percent after fertilization
Catbriar (*Smilax bona-nox*) on left,



Dewberry (reddish stems) (*Rubus trivialis* Michx.)



Blackberry (*Rubus argutus* Link), both dewberry & blackberry with crude protein from 16 to 21 %



Both photos are teaweed (*Sida acuta*), left photo is new growth and right photo is in bloom and seed formation. Crude protein ranged from 17 to 25 percent after fertilization.

Fertilization and plant growth enhancements can improve the quality of forage produced on these plants and probably other plants as well. These were the only plants that had samples sent off to the lab for analysis. In addition to improved protein levels, the amount of the plant that is digestible improved as well. The digestibility levels of these plants approached 70 percent.

So there are good sources of food in the forests and woodlands that are largely being ignored by our management efforts. These plants can be enhanced with fairly minimal efforts such as disking, bush hogging, prescribed burning and/or fertilization. The goal is to provide some sunlight to the plants and then keep the area from becoming covered up in shrubs.



Bush hogging a small clearing to maintain the plants mentioned above.



Disking to set the herbaceous and small woody plants back to maintain the herbaceous cover

This Table lists some of the foods deer eat with a preference ranking from low to high (Stribling 1996).

Common Name	Scientific Name	Rating
Common persimmon	<i>Diospyros virginiana</i>	H
Blackberry, dewberry	<i>Rubus spp.</i>	H
Greenbriar	<i>Smilax spp.</i>	H
Wild grapes	<i>Vitis spp.</i>	H
Trumpet creeper	<i>Campsis radicans</i>	M
Yellow Jassamine	<i>Gelsemium sempervirens</i>	M
Sweetleaf	<i>Symplocos tinctoria</i>	M
American beautyberry	<i>Callicarpa Americana</i>	M
Sassafras	<i>Sassafras albidum</i>	L
Blueberry, huckleberry	<i>Vaccinium spp.</i>	L. (leaves and stems)
Rhododendron	<i>Rhododendron spp.</i>	L.

Native shrubs and vines provide quality wildlife habitat for a variety of wild animals. They provide food and cover throughout the year. In the spring they provide nesting cover. Throughout the summer they provide brood rearing areas and sources of food. In late summer and early fall the palatability and quality of native forage decreases (Harper 2004). In the winter and fall, areas containing these shrubs and vines become critical habitat by providing food and protection from harsh winter conditions and predators.

A few of the forbs that provide excellent forage for deer include teaweed and ragweed. These are problem plants in agriculture production but they offer good quality forage throughout the spring, summer and early fall. In addition, they produce a lot of seed that benefits quail and other birds.

To improve the forb component of your land, burn in late summer or early fall or disk/mow in late summer or early fall. Note the following forbs and their preference by deer.

Forb quality and preference by deer (Harper et al. 2004)

Species	Selectivity	Crude Protein
Old-field aster	high	23
Prickly lettuce	high	
Pokeweed	high	32
Blackberry	medium	19
Goldenrod	medium	16
Ragweed	medium	18
3-seeded mercury	medium	25
Beggar's lice	medium	28
Florida pusley	medium – high	17

Avoid mowing old grasses fields and small clearings between March and June or the nesting season for turkeys and quail and the period of time does give birth to fawns. All of these species seek out these areas to hide their young from predators. Leave water holes as these are needed by deer and turkeys and a host of other wildlife species.

Other species that benefit from managing quail, turkey or deer.

Open areas: Yellow-rumped warbler, gold finch, indigo bunting, American kestrel, cottontail rabbit and Red fox.

Early regeneration stages of the forest: Rabbits, gray fox, yellow breasted chat, chestnut-sided warbler, rufous-sided towhee and sparrows.

Mature forests: Wood thrush, hooded warbler, red-eyed vireo, brown-headed nuthatch, black bear, squirrels, and raccoons.

What can you do?

Learn to identify desirable native plants. Maintain a diverse habitat including small open areas, lots of edge habitat and some mature woodlands or forests. Ask for assistance if you are not sure what plants you should be looking for. Enhance native plants by fertilization, mowing, disking or prescribed burning.



Thinning or partial cutting will increase sunlight to the forest floor



A hardwood forest after forest stand improvement, note all of the desirable herbaceous vegetation

Literature Cited:

Harper, C. A., G. E. Bates, M. J. Gudlin and M. P. Hansbrough. (2004). *A landowner's guide to native warm-season grasses in the mid-south*. University of Tennessee Extension publication PB 1746. Knoxville, TN. 25 p.

Hart, David. (2006). *10 Common deer foods*. Hunt Club Digest. An official publication of the Forest Landowners Association. Fall 2006. p. 6-8.

Miller, J and Miller, K.V. 1999. *Forest Plants of the Southeast and their wildlife uses*. Southern Weed Science Society.

Stribling, Lee. (1996). *White-tailed deer management*. Alabama Cooperative Extension System publication ANR-521. 4 p.

Yarrow, G. K. and D. T. Yarrow. (2005). *Managing wildlife on private lands in Alabama and the southeast*. Presented by The Alabama Wildlife Federation and edited by Dan Dumont, published by Sweetwater Press, Birmingham, AL. 588 p.

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